AOSC 470
Homework #4
DUE: 13 October 2015
Questions are worth 10 points each

1) Compute the divergence of the geostrophic wind in either height or isobaric coordinates. ***Do not*** assume that Coriolis is a constant. How does the expression simplify if you do assume Coriolis is constant (f-plane approximation)?

2) Martin 6.1

3) Martin 6.4

4) The figure below shows contours of 300 mb geopotential in the Northern Hemisphere. For this configuration of geopotential, is this a jet entrance or jet exit region? At the circle, diagnose and mark the inertial-advective component of the ageostrophic wind (Martin Equation 6.12). What terms from M6.12 can be eliminated for this schematic? From V_{IA}, identify one region of convergence and one region of divergence. What does this mean for upward and/or downward vertical motion.